An Inaugural Dissertation

On

Tetanus.

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By Henry Charles Glover;

of Charleston South-Carolina.

It may appear strange after so ma-
-ny and such accurate histories have been
written on Tetanus, and by men of unpa-
-ralleled abilities, that I should presume
to say any thing on this disease in an
Inaugural Dissertation. But if ever a
disease from the great distress and morta
-lity which it occasions, could justify
such an attempt, I am sure it is the one
which I have chosen for the subject
of the present inquiry. The many
horrid scenes which it occasions, must
render any thing that tends to throw
light upon a subject, that proves so
fatal to many, particularly interesting.

It may be necessary to premise that I do not intend entering into the various controversies and disputes which have so frequently existed, whether the several divisions of Tetanus were distinct species, or only different grades of the same disease; but merely give my opinion in a brief manner. The diversity of opinions, which has long since prevailed among learned and experienced Physicians concerning diseases; cannot but make the ascent of science, much more arduous to the inexperienced student, who is often prejudiced in favour of a theory, because he respects the author of it.

Tetanus is a disease of great and morbid muscular action, which is prevalent in warm climates, particularly in the summer seasons, when a warm day

is succeeded by a damp Night, in consequence of either rain or dew. Dr. Cullen arranges it as a genus of disease, in the Class Neurosis and order Spasmi. It has been divided by the most learned of the ancients as well as moderns, into two kinds; the one consisting of a continued morbid and involuntary contraction of the muscular fibres, or muscles, of the whole or any particular part of the body; and is from thence called Tonic spasm. The other known by an alternate relaxation and contraction of the muscles, also without the concurrence of the will, or the repetition of the cause which induced it, and is called Clonic spasm, or convulsions.

Besides this division of the disease it has been given different names according to the different parts of the body which are affected with it. When the muscles

of the Neck, Body, arms and Legs, are so ri-
-gidly contracted as to be kept straight and
inflexible, together with so violent a con-
-traction of the muscles of the Lower jaw, as
to keep it locked; the Patient is then said
to have a genuine Tetanus. When by a vi-
-olent and morbid contraction of the muscles
the body is bent rigidly forward, it is cal-
-led Emprosthotonos. When by a similar
morbid contraction the body is rigidly
bent backward, it then takes the name
of Opisthotonos. When the body is ri-
-gidly held to one side Pleurosthotonos;
and Trismus or Lock-jaw when the
contractions of the muscles of the under
-jaw are so morbid and violent, and
the under-jaw is so rigidly drawn to-
-wards the upper that the mouth cannot
be opened.

The Trismus Nascentium or falling of the jaw is also a Tetanic affection attacking Children on or before the Eighth, and seldom after the fourteenth day from their birth. Several causes have been assigned for its appearance; but Physicians have now generally agreed in attributing it to warmth and moisture. It is a frequent occurrence among the Negro Children in the Country residences of South Carolina; in consequence I presume of the Cold and dampness of their huts, together with the negligence of their Mothers in shifting them.

These several divisions of Tetanus have been considered by many learned and experienced Physicians as distinct species; while many others of equal learning and abilities have contended

that they were only different grades of the same disease. The latter opinion seems to be the most plausible, for both the cause and treatment are exactly the same whether it be opisthotonos, or Genuine Tetanus. I believe it depends entirely on what part of the body labours under predisposing debility, at the time the exciting cause is produced.

Dr. Hillary tells us "that the genuine Tetanus may be esteemed only a greater or more universal extended degree of the opisthotonos". Dr. Moseley on the contrary, says the reverse is the fact, and "that the extreme degree of universal spasm or Tetanus, constitutes the opisthotonos". Here we find two opinions asserted with equal confidence, altho' they are diametrically

opposite in their Nature. To me a genuine Te-
-tanus appears to be the worst, as it is preceed
ed by universal debility, and there is no
part of the body excempt from it. That
it is attended with the greatest danger
there can be no doubt; being always ac
-companed with Trismus which prevents
the Physician from assisting his patient
by any other means than external appli
-cations or Injections.

Dr. Moseley mentions, that of nearly
one hundred persons he had seen perish by
Tetanus; from wounds and accidents in
the West-Indies, he never saw any thing
like an Emprosthotonos; nor does he admit
of the possibility of its existence, agreeably
to the Laws of Physiology; his reasons for
asserting that the opisthotonos is the extreme
degree of Tetanus, are founded on the

same principles which support his opinion, that there is no such disease as an Emprosthotonos; and argues in this way. That when the fibres of all the muscles of the body are put to their extreme exertion, the cervical, Dorsal and posterior muscles being greater in number have too much power to be resisted by the anterior muscles; and the body is consiquently bent backward. However this can not with propriety be admitted, as just Physiological reasoning, as daily experience evinces, that a violent morbid contraction of the muscles of one part of the body, is often accompanied with a proportioned relaxation and debility of the antagonist muscles; if this was not the case how is it possible that there could be such a disease as the Pleurosthotonus; for equally

to the laws Physiology, the muscles of one side of the body are not more numerous, nor of greater strength than those of the opposite side; and the existence of the disease has been asserted by many authors of veracity, that I think it cannot with propriety be disputed.

Tetanus whether Idiopathic or Symp-tomatic affects all ages and both sexes, nor is man alone subject to its Influence; several species of animals are also affected with it; and among them I have often seen horses in particular die of this dread-ful disease. The interval between the time of the exciting cause, and the ap-pearance of the disease, varies from one day to six weeks. when it proceeds from Cold, it commonly comes on much sooner, after the application of such Cold, than when it arises from

wounds or lesions of any part of the body.
Tetanus sometimes comes on suddenly to a vio-
-lent degree; but more generally it approaches
by slow degrees to its violent state; commen-
-cing with a sense of stiffness in the back part
of the neck, which gradually increasing, ren-
-ders the motion of the head difficult and pain
-ful; at this time some uneasiness is felt
about the root of the tongue, which by degrees
becomes a difficulty of swallowing, and at
length an entire interruption of it; the tongue
however retains its mobility a considerable
time; and when affected, the spasm attacks
certain muscles only, often thrusts the tongue
violently out between the teeth. as the
symptoms advance the posterior muscles,
particularly those of the neck, become
more and more commissed, and pulls the
head strongly backward; at the same
time the muscles which draw up the
lower jaw, become more violently

affected, and at last completely lock the jaw. The pain now, which frequently occurs in the commencement of the disease, at the bottom of the sternum, becomes more vio-lent. At length the flexors of the head and trunk become so strongly affected as to balance the extensors, and keep the head and trunk straight, and rigidly exten-ded; it is this state to which the term Tetanus has been strictly applied. The arms little affected before now become rigidly extended; the whole of the muscles being affected, except those that move the fingers, which often to the last retain some mobility. When the disease gets to its height every organ of voluntary motion seems to be affected; among others the muscles of the face. The Pulse is little altered until the spasms become general and violent;

it is then contracted, hurried, and irregular; and the respiration is affected in like manner. Every case that has come under my notice, was attended with cold extremities, together with a cold sweat over the body. Fever seldom occurs in this disease; though Dr Cullen says when caused by cold, it has supervened.

Patients labouring under clonic spasm require particular attention, for after a temporary remission the succeeding contraction is frequently so severe that the patient is often convulsed. Dr Mosely tells us on visiting people affected with it, he has often found them out of bed, when neglected by their attendants; and mentions cases of patients being suddenly seized with a violent contraction of the muscles, whilst out of bed, which brought them to the ground by a severe fall. Our author highly recommends

guarding against such accidents, as they often terminate the Patients existance.

The Remote Cause, by which we are to understand any thing which will induce debility; by the exciting cause, any stimulus which by acting on that debility will tend to induce disease. The most frequent of these, are wounds, contusions, burns, bruises, fractures, dislocations, surgical Operations, parturition, and obstructed perspiration; it is also induced by sudden transitions from heat to Cold. Dr Rush in his Lectures mentions cases in which it was brought on by persons striking their toes against a stone, or cutting a nail or Corn too close. He also mentions an important fact, which deserves our serious attention; that he never knew a case of Tetanus proceed from a wound in which there was Inflammation.

The Predisposing cause of ~~xxx~~ diseases

has of late been a subject of little altercation among Physicians, as they have generally attributed it, in this, as well as all other diseases to debility. I cannot conceive the possibility of a disease, according to the present improved Theory of Medicine, without predisposing debility. This debility is of two kinds, the one produced in consequence of an abstraction of some of the natural stimuli from the system; the other from an excess of stimuli; or in other words the one is debility from action, the other debility from abstraction. Diseases of Direct and Indirect debility require a variation in the force of the remedies made use of for their cure; it is therefore requisite that the judgement of the Practitioner should be exerted in distinguishing the one from the other, when the causes which induce

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them cannot be discovered, to effect this is difficult, but the criterian by which I have been taught to distinguish them, is by praying particular attention to the length and duration of the attack; those being generally found to be diseases of indirect debility which are suddenly induced, while those of direct, are most commonly gradual in their attack on the System.

The Proximate cause of disease, has been a subject of more altercation among Physicians than any one point in the Theory of Medicine; By it we are to understand something, which if removed, disease no longer exists; in fact it is the disease itself. Dr Rush tells us it is morbid, irregular or wrong action in the system; which in this disease is chiefly seated in the muscles, causing the involantary contractions we call Spasms.

The cure of Tetanus has long been the opprobrium of the healing art; and the discovery of a specific, or certain method of curing it, is still one of the greatest desiderata in medical science. Who can peruse Dr Moseley on this disease without admiring the candour of the Physician! he tells us he never saved the life of one patient who had a complete Tetanus after an operation.

Tetanus as I have said is seated in the muscles, and while they are preternaturally excited, the bloodvessels are in a state of reduced excitement! now by stimulating the wound we not only restore their natural excitement, but produce an inflammatory diathesis in them, which abstracts morbid excitement from the muscular system, and, by equalising it, cures the disease. This plan it is said will not answer in the

West-Indies; which has happily been accounted for by Dr Rush: "The bloodvessels in a warm climate refuse to assume an Inflammatory action. Stimuli hurry them on suddenly to Torpor or Gangrene." This however is not to deter our endeavours to excite Inflammation in a wound which threatens spasm, in the United States, not even South Carolina; for I have seen two cases in Charleston in which symptoms of Tetanus were fast approaching, from a Punctured wound; My Brother Dr Joseph Glover on visiting those patients, immediately laid open the wound, which excited Inflammation; and thus as I firmly believe saved both of their lives.

Stimulants have generally been depended on for the cure of Tetanus; Dr Moseley thinks they overcome the morbid muscular contraction. He speaks of opium as the best remedy, given in large doses and often repeated.

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But our whole dependance should not be placed on this medicine.

Paul Hamilton Esquire of Colleton south Carolina, now Secretary of our Navy; has often cured Tetanus among his Negroes, by giving large quantities of ardent spirits. and I have seen a horse once completely cured of violent spasm by the same remedy.

The oil of Amber has been highly useful in this disease; Dr Rush in his Inquiries mentions his having "seen the happiest effects from the exhibition of six or eight drops of it, every two hours"; and thinks it acts powerfully upon the muscular system.

Bark and wine have of late been used with great success, particularly by Dr Rush the wine should be given in very large quantities. This Practice has been strongly

advocated by Dr. Hosack of New-York, whose experience appears likewise to sanction its utility.

When unfortunately for the patient there is so great a contraction of the muscles of the Lower Jaw and Pharynx, that nothing can be taken by the mouth, it would be advisable that Nutritive Injections, with the addition of a few drachms of Liquid Laudanum should be administered frequently through the course of the day; that such patients may be kept alive by its nourishment, while the stimulus of the Laudanum might tend to conquer the disease. Applications of opium and camphor to the feet, or Injections of the smoke of Nicotiana, should be tried, and frequently repeated until the symptoms abate.

Both the cold and warm Baths have likewise had their advocates in this disease. They both operate either directly or indirectly in a different manner. The warm bath will directly sti-

-mulate and indirectly debilitate. While the Cold bath will deplete directly, and indirectly stimulate. Therefore in the choice of either of them the Practitioner should be guided entirely by the method of cure the state of the System points out to him; as both of them will be found of great utility in different stages of the disease. Should he be disposed to reduce the morbid action by depletion, and for that purpose prefers the bath, he will use the cold in preference to the warm; as it will directly affect that which he wishes. and vice versa.

Salivation, this has certainly been too much neglected by Physicians in general, in this disease; and I see no reasons why it should not be of great service, for by keeping up the discharge of saliva, it would tend to relax the muscles of the jaw, and probably abate every symptom. The greatest difficulty that attends this remedy, is to produce a ptialism before a termination of the disease; a salivation however may be speedily induced by rubbing Calomel on the Gums, and Mercurial

ointment in the axilla.

Dr Brooks in his practice, when treating of the Opisthotonos and Tetanus of North-America, tells us that the face is sometimes pale, but oftener flushed. These observations I conceive to be of great consequence in determining on a certain method of cure, as Nature cannot more directly point out to us the utility of the Lancet, than by subjecting to our view a Clinical patient, with a face turgid with blood. In every case which I have seen bloodletting used in Tetanus, it produced a temporary remission, but I am sorry to add, the succeeding contraction was always more violent. I must however confess that I have never seen it carried to any great extent.

Having now Gentlemen given in a short and best manner my time and talents would permit; such methods of treating Tetanus, as I have seen pursued by different Physicians. You will readily perceive I have omitted mentioning many remedies; not however because I was ignorant of their being used in this disease

but as I have never seen a trial made of them; it would be superfluous to make mention of them in this place.

In thus taking my leave of you, permit me to express my sincerest wishes, that you may enjoy, through the remainder of your lives an uninterrupted scene of health and happiness. To all of you I find myself essentially indebted, for the invaluable instruction I have received from your lectures. The pointed attention with which I have been honoured by some of you, will ever awaken the grateful sensibility I feel, for the kindness I have received.

Finis.